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### TRANSMITTAL VIA PRIORITY MAIL:

To The Honorable Commissioner  
of Patents and Trademarks  
Washington, D.C. 20231

Re: U.S. Patent Application 09/917,308 for "EFFICIENT SYNTHESIS OF TRIBOLUMINESCENT LANTHANIDE COMPLEXES";(from PPA 60/220,992 for "Methods for Synthesizing Triboluminescent Lanthanide Complexes and New Triboluminescent Lanthanide Complexes Discovered Thereby"; Filed: 27 July 2000); Filed: July 27, 2001; Applicant: Linda M. Sweeting.

LAW  
BUSINESS  
TECHNOLOGY

Dear Sir:

Enclosed please find the following:

1. Information Disclosure Statement (w/ copies of 4 patents and 19 non Patent Literature Documents).
2. PTO Form (PTO/SB/08A) (3 pp).
3. Our post card. Please date stamp and return.

Thank you for your cooperation and assistance.

Respectfully submitted,

Royal W. Craig  
Attorney for Applicant  
Reg. No. 34,145

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I HEREBY CERTIFY that on this October 25, 2001, one copy of the above-referenced documents were deposited with the United States Postal Service for delivery by Priority Mail to the United States Patent and Trademark Office.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

528-52

In re Application of:

Sweeting, Linda M.

Application No. 09/917,308



Art Unit: 1755

Filed: July 27, 2001

GP/1755  
#2  
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TECH CENTER 1600/2900

Re: "EFFICIENT SYNTHESIS OF TRIBOLUMINESCENT LANTHANIDE COMPLEXES"

\* \* \*

INFORMATION DISCLOSURE STATEMENT

To The Honorable Commissioner  
of Patents and Trademarks  
Washington, D.C. 20231

Sir:

Enclosed are copies of the following reference documents.

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TC 1700

U.S. Patent Documents

<u>Inventor(s)</u>	<u>Patent No.</u>	<u>Date of Publication</u>
Hall-Goulle	6,071,632	6/6/00
Lebl, et al.	6,045,755	4/4/00
Gordeev, et al.	6,025,371	1/15/00
Bier, et al.	5,980,839	11/9/99

Summary of References:

U.S. Patent No. 6,071,632 to Hall-Goulle discloses certain triboluminescent lanthanide complexes and the use of the compounds for optical sensors sensitive to impact tension or pressure. Hall-Goulle '632 shows compounds made with Eu, Tb, Dy and Sm according to equation 2 with a diketone in which R1 and R2 are independently phenyl, and t-butyl. This reference also claims hydrogen, C<sub>1</sub>-C<sub>6</sub> alkyl and an additional alkyl substituent on the center carbon of the diketone. The compounds are triboluminescent when the amines are p-N,N-dimethylaminopyridine, N-methylimidazole and p-methoxypyridine-N-oxide and R1 = R2 = C(CH<sub>3</sub>)<sub>3</sub> for Eu, Tb, Dy, and Sm. Literature methods are shown for making the initial lanthanide reagent.

U.S. Patent No. 6,045,755 to Lebl, et al. shows a robot for fully automated combinatorial synthesis protocols. The robot is programmable to manipulate tools and reagents among reaction vessels distributed over a lab workstation. The robot is capable of sealing and

unsealing bottle, dispensing and removing fluids, and monitoring temperature controlled incubation. The robot is thereby capable of performing high throughput synthesis of compounds according to a programmable synthesis protocol.

U.S. Patent No. 6,025,371 to Gordeev, et al. teaches construction of a combinatorial library that contains a fused 2,4-pyrimidinedione, and a method for the identification of bioactive, fused 2,4-pyrimidinediones from those libraries. Combinatorial synthesis is performed on a solid support, suspending beads or particles in a solvent, then separating the beads in separate reaction vessels. The beads are washed, re-mixed in a parent container, and again divided and placed into separate reaction vessels. The mixing and redivision is repeated until each of the different chemical modules has been incorporated into the molecule attached to the solid support.

U.S. Patent No. 5,980,839 to Bier, et al. shows an apparatus and process for conducting automated combinatorial chemical synthesis. A vessel is provided that includes a reaction region having a plurality of individual reaction cavities with a port for adding or removing agents. Resin beads are distributed into each of the reaction cavities, and a reaction is performed on the resin beads. The beads are transferred to a mixing region disposed within the vessel. The apparatus and method enable multiple simultaneous reactions using a solid support.

#### Other Prior Art - Non Patent Literature Documents

- \*WALTON, A.J., "Triboluminescence", *Advances in Physics* 1977, Vol. 26, No. 6, 887 - 948.
- \*FANTER, D. L, et al., *Durability of Macromolecular Materials*; American Chemical Society Symposium Series, Washington, D.C., 1979, Vol. 95.
- \*SAGE, I., et al, "Triboluminescent Damage Sensors", *Smart Mater. Struct.* 1999, Vol. 8, 504 - 510.
- \*XU, C. N., et al., "Artificial Skin to Sense Mechanical Stress Visible Light Emission", *Appl. Phys. Lett.* 1999, Vol. 74, 1236 - 1238.
- \*XU, C. N., et al., "Direct View of Stress Distribution in Solid by Mechanoluminescence", *Appl. Phys. Lett.* 1999, Vol. 74, 2414 - 2416.
- \*XU, C. N., et al., "Dynamic Visualization of Stress Distribution by Mechanoluminescence Image", *Appl. Phys. Lett.* 2000, Vol. 76, 179-181.
- \*HURT, C. R., et al., "High Intensity Triboluminescence in Europium Tetrakis(dibenzoylmethide)triethylammonium", *Nature* 1966, Vol. 212, 179 - 180.

Linda M. Sweeting

Application No. 09/917,308

- \*ZHU, et al., "Rare Earth Triboluminescent Complexes Part II. Mixed Complexes Between Europium (3+) Pyridine-type Nitroso Compounds", *Zhongguo Xitu Xuebao* 1990, Vol. 8, 102 - 105.
- \*CHEN, X.- F, et al., "Synthesis, Crystal Structure and Triboluminescence Spectrum of 1,4-dimethylpyridinium tetrakis(2-thenoyltrifluoroacetate)europate", *Polyhedron* 1998, Vol. 17, 1883 - 1889.
- \*CHEN, X. F, et al., "Triboluminescence and Crystal Structure of Non-Ionic Europium Complexes", *J. Mater. Chem.* 1999, Vol. 9, 2919-2922 (Note: This reference was incorrectly cited in the specification).
- \*TAKADA, N., et al., "Mechanoluminescent Properties of Europium Complexes", *Synth Metals* 1997, Vol. 91, 351 - 354.
- BORMAN, S., "Reducing Time to Drug Discovery", *Chem. Eng. News* 1999, 33-48.
- DAGANI, R., "A Faster Route to New Materials", *Chem. Eng. News* 1999, 51-60.
- SWEETING, L.M., et al., "Crystal Disorder and Triboluminescence: Triethylammonium Tetrakis(dibenzoylmethanate)europate", *J. Am. Chem. Soc.* 1987, Vol. 109, 2652-2658.
- SWEETING, L.M., et al., "Crystal Structure and Triboluminescence 1. 9-anthrylcarbinols", *J. Phys. Chem.* 1988, Vol. 92, 5648-5655.
- SWEETING, L.M., et al., "Triboluminescence of Wintergreen Candy", at the *Third Chemical Congress of North America*, Toronto, 1988.
- SWEETING, L.M., et al., "Triboluminescence Spectra of Organic Crystals are Sensitive to Conditions of Acquisition", *J. Lumin.* 1991, Vol. 52, 281-290.
- SWEETING, L.M., et al., "Spectroscopy and Mechanism in Triboluminescence", *Mol. Cryst. Liq. Cryst.* 1992, Vol. 211, 389-396.
- SWEETING, L.M., et al., "Crystal Structure and Triboluminescence 2. 9-Anthracenecarboxylic Acid and Its Esters", *Cherm. Mater.* 1997, Vol. 9, 1103-1115.

\* \* \* \*

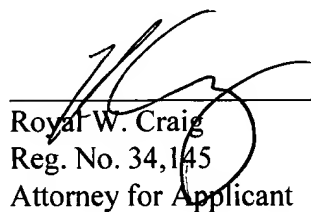
All of the above-described references are submitted herewith along with form PTO-

*Linda M. Sweeting*  
*Application No. 09/917,308*

1449 for the convenience of the Examiner.

Consideration of the foregoing and the making of the references formally of record in the instant application is respectfully requested.

Respectfully submitted,



\_\_\_\_\_  
Royal W. Craig  
Reg. No. 34,145  
Attorney for Applicant

\_\_\_\_\_  
Date

11/21/01

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210 North Charles Street  
Suite 1510  
Baltimore, Maryland 21201  
RWC/tcb

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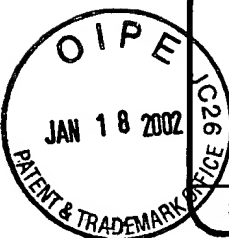
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**Complete if Known**

<b>Application Number</b>	09/917,308
<b>Filing Date</b>	27 July 2001
<b>First Named Inventor</b>	Sweeting, Linda
<b>Group Art Unit</b>	1755
<b>Examiner Name</b>	To be Assigned
<b>Attorney Docket Number</b>	Sweeting PA-1

*(use as many sheets as necessary)*

Sheet 1 of 3

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Examiner  
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Date	
Considered	

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449B/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet **2** of **3**

### Complete if Known

Application Number	09/917.308
Filing Date	27 Feb 2001
First Named Inventor	Sweeting, Linda
Group Art Unit	1755
Examiner Name	To be Assigned
Attorney Docket Number	Sweeting PA-1

### OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		WALTON, A.J., "Triboluminescence", Advances in Physics 1977, Vol. 26, No. 6, 887 - 948.	✓
		FANTER, D. L, et al., Durability of Macromolecular Materials; American Chemical Society Symposium Series, Washington, D.C., 1979, Vol. 95.	
		SAGE, I., et al, "Triboluminescent Damage Sensors", Smart Mater. Struct. 1999, Vol. 8, 504 - 510.	✓
		XU, C. N., et al., "Artificial Skin to Sense Mechanical Stress Visible Light Emission", Appl. Phys. Lett. 1999, Vol. 74, 1236 - 1238.	✓
		XU, C. N., et al., "Direct View of Stress Distribution in Solid by Mechanoluminescence", Appl. Phys. Lett. 1999, Vol. 74, 2414 - 2416.	✓
		XU, C. N., et al., "Dynamic Visualization of Stress Distribution by Mechanoluminescence Image", Appl. Phys. Lett. 2000, Vol. 76, 179-181.	✓
		HURT, C. R., et al., "High Intensity Triboluminescence in Europium Tetrakis(dibenzoylmethide)triethylammonium", Nature 1966, Vol. 212, 175 - 180.	✓
		ZHU, et al., "Rare Earth Triboluminescent Complexes Part II. Mixed Complexes Between Europium (3+) Pyridine-type Nitroso Compounds", Zhongguo Xitu Xuebao 1990, Vol. 8, 102 - 105.	
		CHEN, X.-F, et al., "Synthesis, Crystal Structure and Triboluminescence Spectrum of 1,4-dimethylpyridinium tetrakis(2-thenoyltrifluoroacetate)europate", Polyhedron 1998, Vol. 17, 1883	✓
		CHEN, X. F, et al., "Triboluminescence and Crystal Structure of Non-Ionic Europium Complexes", J. Mater. Chem. 1999, Vol. 9, 2919-2922	✓
		TAKADA, N., et al., "Mechanoluminescent Properties of Europium Complexes", Synth Metals 1997, Vol. 91, 351 - 354.	✓

Examiner  
Signature

Date  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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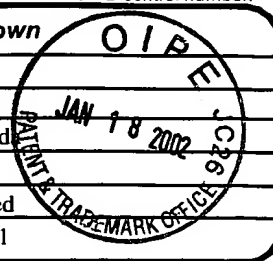
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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)		Application Number	09/917.308
		Filing Date	27 Feb 2001
		First Named Inventor	Sweeting, Lind
		Group Art Unit	1755
		Examiner Name	To be Assigned
		Attorney Docket Number	Sweeting PA-1
Sheet	3	of	3



OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		BORMAN, S., "Reducing Time to Drug Discovery", Chem. Eng. News 1999, 33-48.	/
		DAGANI, R., "A Faster Route to New Materials", Chem. Eng. News 1999, 51-60.	/
		SWEETING, L.M., et al., "Crystal Disorder and Triboluminescence: Triethylammonium Tetrakis(dibenzoylmethanato)europate", J. Am. Chem. Soc. 1987, Vol. 109, 2652-2658.	/
		SWEETING, L.M., et al., "Crystal Structure and Triboluminescence 1. 9-anthrylcarbinols", J. Phys. Chem. 1988, Vol. 92, 5648-5655.	/
		SWEETING, L.M., et al., "Triboluminescence of Wintergreen Candy", at the Third Chemical Congress of North America, Toronto, 1988.	/
		SWEETING, L.M., et al., "Triboluminescence Spectra of Organic Crystals are Sensitive to Conditions of Acquisition", J. Lumin. 1991, Vol. 52, 281-290.	/
		SWEETING, L.M., et al., "Spectroscopy and Mechanism in Triboluminescence", Mol. Cryst. Liq. Cryst. 1992, Vol. 211, 389-396.	/
		SWEETING, L.M., et al., "Crystal Structure and Triboluminescence 2. 9-Anthracenecarboxylic Acid and Its Esters", Chem. Mater. 1997, Vol. 9, 1103-1115.	/

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